GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	QUALITY ENGINEERING, PG_00066859		
Field of study	Engineering Management		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2024/2025
Education level	first-cycle studies	Subject group	Optional subject group Subject group related to scientific research in the field of study
Mode of study	Part-time studies (on-line)	Mode of delivery	blended-learning
Year of study	3	Language of instruction	Polish
Semester of study	6	ECTS credits	6.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Management Engineering and Quality -> Faculty of Management and Economics		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Elwira Brodnicka	
	Teachers	dr inż. Elwira Brodnicka	

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	16.0	0.0	16.0	0.0	0.0	32
	E-learning hours included: 19.0						

Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
	Number of study hours	32	0.0	0.0	32

Subject objectives	"The aim of the course is to present the principles of Quality Engineering based on the achievements of the Polish School of Quality, international advancements in the field, and practical industrial experience."

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_U08] analyses engineering and managerial solutions in decision-making processes, taking into account pro-quality and pro-environmental aspects, as well as safety of work processes	Student can take advantage of specialized statistical software (eg. MiniTab) to support management processes using methods of quality engineering	[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information
	[K6_W13] has a basic knowledge of the design, modelling and optimisation of technical processes and systems	The student has knowledge of process modeling, design, and optimization using Quality Engineering methods, particularly Six Sigma	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects

Subject contents	**LECTURE** 1. **Introduction** Basic definitions, course completion requirements 2. **Measurement system** 3. **Statistical methods in process quality assessment** 4. **Process capability and stability** 5. **Traditional and modern quality engineering tools** 6. **Six Sigma as an innovative approach to process improvement** 7. **Quality costs** 8. **TEST** **LABORATORY** 1. **INTRODUCTION; CHARACTERISTICS OF MEASUREMENT EQUIPMENT** 2. **MEASUREMENT SYSTEM ASSESSMENT Measurement** 3. **MEASUREMENT SYSTEM ASSESSMENT Minitab** 4. **STATISTICAL PROCESS CONTROL Measurement** 5. **STATISTICAL PROCESS CONTROL Minitab** 6. **CONTROL OF ELECTRICAL PARAMETERS** 7. **MAKE-UP CLASSES** 8. **TEST**

Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test of laboratory	60.0%	30.0%
	raport	60.0%	35.0%
	test of lecture	60.0%	35.0%
Recommended reading	Basic literature	Keller, P., 2023. The Six SIGMA Handbook, Sixth Edition: A Complete Guide for Green Belts, Black Belts, and Managers at All Levels, MCGRAW HILL BOOK CO. George, L. M, Maxey, J. Rowlands, D.T. 2004. The Lean Six SIGMA Pocket Toolbook: A Quick Reference Guide to Nearly 100 Tools for Improving Quality and Speed, McGraw-Hill Education Ltd	
	Supplementary literature	not required	
	eResources addresses	Adresy na platformie eNauczanie: Inżynieria Jakości_ OL_2025 - Moodle ID: 45133 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=45133	
Example issues/ example questions/ tasks being completed	1. **Measurement system assessment** 2. **Use of ISHIKAWA and PARETO diagram** 3. **Application of the SPC methodology** 4. **Use of the 5 Why form**		
Work placement	Not applicable		

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